TABLE 7.—*Number of persons killed or injured in Virginia by tornadoes, 1814–1925, inclusive*

Year	Killed	Injured	Year	Killed	Injured
1814		2	1889	2	1
1816	2	3	1896		5
1834	4	7	1904		1
1842		3	1912		2
1857		2	1917	1	3
1879		3	1921		2
1884		2	1924	1	12
1886	1	3	1925		5
1887	2	5			
1888	4	21	Total	17	82

Table 7 indicates that the danger from tornadoes in Virginia is not great. Moreover, it has been computed that in the tornado States in the Mississippi Valley the probability that a farm the size of 1 square mile will be struck by a tornado is less than one-sixteenth of 1 per cent per century. The area of Virginia is 42,617 square miles. The tornado frequency per year since 1870 is 1.02; therefore the chance that a tornado in any year may cross a particular locality 1 mile square is 42,627/1.02. This is one chance in 41,000, and hence is scarcely worth considering. The probability of tornado destruction of life or property is far less than that from lightning and fire. And so far as life is concerned, the tornado is not to be remotely compared with the ubiquitous and space-defying automobile.

THE ILLINOIS TORNADO OF APRIL 19, 1927

By CLARENCE J. ROOT,

[Weather Bureau, Springfield, Ill.]

Illinois has had another long-path tornado, the fifth of more than 100 miles within the State to occur during the last 10 years. In its course it caused 21 deaths, the known injury of 183 persons, and estimated property losses of $1,369,500.

At 7 a. m. of the 19th a trough of low pressure lay west of Illinois. The isobar of 29.60 inches inclosed an elongated area extending from western Lake Superior to eastern Kansas. The center (29.50 inches) was at St. Paul. Southerly winds and mild temperatures were general in the Mississippi Valley as far north as Minnesota. This was in direct contrast with the condition that obtained at the time of the tri-State tornado of March 18, 1925. At that time northerly winds and low temperature north of the tornado track met the warm southerly winds that prevailed to the southward. By 7 p. m. of the 19th the center of the low-pressure area was north of Lake Superior, thunderstorms had occurred over northern and central Illinois, and the winds were west at Springfield and northwest in all of western Illinois. At Springfield the wind veered from south-southeast preceding the storm to southwest immediately after, and later to west and northwest. It is very evident that the tornado occurred on the shift line.

At the time the tornado passed Springfield it became quite dark, and excessive rain and some hail fell. The clouds moved from the south and were angry and turbulent in appearance. In the southeast some white scuds appeared. During the forenoon poorly defined mammato-cumulus clouds were observed. On April 4, 12, and the morning of the 19th the barograph showed changes typical of tornadic conditions, but nothing happened. About the time of the tornado the barometer fluctuated considerably. From noon until a little after 1:00 p. m. it fell rapidly, but not suddenly, 0.11 inch, then rose suddenly 0.10 inch, after which it fell and rose a little before 2:00 p. m.

According to the section director for Missouri the tornado had its inception 4 miles southwest of Apex, Lincoln County. It moved 7 miles in Missouri, injuring 12 persons and doing considerable damage; then crossed the Mississippi River into Illinois. It passed in a northeast direction over a nearly straight course through the counties of Calhoun, Greene, Macoupin, Morgan, Sangamon, Logan, De Witt, apparently terminating near the Ford-Livingston boundary line, a total distance of about 170 miles.

Two lives were lost in Calhoun County, the narrow peninsula between the Illinois and Mississippi Rivers. The storm passed one-half mile northwest of Hardin and crossed Greene County with no skipping, passing one-half mile north of Carrollton, the county seat, and damaging farm properties across the county. Three persons were killed southwest of Carrollton, including that brave young teacher, Miss Annie Keller, who sacrificed her life in the effort to save the lives of the 18 pupils in the school building, none of whom was seriously injured. The pupils were directed to take shelter under the seats. Four persons were killed near Wrights, and one near Athensville. The path of the storm then led across the northwest corner of Macoupin County and the southeast corner of Morgan County, passing one-half mile northwest of Waverly, and entered Sangamon County southwest of Loami. It passed only one-fourth mile southeast of that town. A death occurred 2 miles east of Loami. In Sangamon County west of the Springfield-St. Louis highway (route 4) the property loss was $65,000. Three buildings at the highway were damaged about $6,000.

Representatives of the Springfield Weather Bureau office visited Buffalo Hart, Cornland, Riverton, and the zone south of Springfield. The next damage was in a built-up section at the extreme southeast of Springfield, immediately outside the city limits. The path here was not over 300 feet wide. One house was moved 7 feet, and seven others had minor damage. Soon after leaving Springfield the tornado seemed to lift and after passing over a portion of Riverton struck the northeast part of that place, demolishing seven dwellings, mostly miners' cottages, damaging about a dozen more, six of them badly, with loss estimated at $10,000; then striking the Peabody Coal Mine it caused damage to the extent of about $40,000. Buffalo Hart was the first town to lie directly in the path of the storm. This hamlet is in the woods known as "Timberland." The tree destruction was severe. The elevator was turned over, the depot and store partially wrecked, but the church escaped. Five residences were destroyed, five badly damaged, and only one escaped serious harm. There were three deaths here and nine were injured. The money loss was about $35,000. For the next 30 miles the path followed directly or closely the Illinois Central Railroad.

Cornland, 3 miles from Buffalo Hart, was the only center of population of importance that felt the full fury of the storm. The path of severe damage, about 1,000 feet, covered all but the south edge of the town. The total width of the path here was about 2,000 feet. Of the 48 residences, 5 were very little harmed, 7 were a total loss, and the other 36 received varying degrees of damage. The 2 churches and 5 stores were destroyed, the bank partly wrecked, but the 2 elevators, depot, and 2 school buildings received very little injury. The total

damage was at least $100,000. Two persons were killed and five injured. Considering the destruction at Cornland, it is remarkable that there were no more casualties. After leaving Cornland the path lay south of Lake Fork, just at the south edge of Mount Pulaski, through Chestnut, at the north edge of Clinton, within 1 mile of the courthouse. The tornado passed through one corner of Le Roy, causing a loss of $100,000, including the damage to the high-school building; then it moved on between Arrowsmith and Saybrook. A number of persons were injured in the Le Roy school building. Two persons were killed near Mount Pulaski. At Chestnut it damaged property $60,000, including $10,000 loss to a modern two-story brick school; two of the pupils were killed. A farmer lost his life in De Witt County.

Perhaps the most peculiar feature of this tornado was the manner in which it just missed cities and towns along its course, as indicated in the table below (Table 1). The tri-State storm of 1925 acted in a very different manner. Had the recent storm passed through the centers of population listed in the table, the deaths and losses would have been several times greater.

TABLE 1

Place	Population (1920)	Distance from (miles)
Hardin	694	½
Carrollton	2,020	½
Waverly	1,510	½
Loami	462	¼
Springfield	59,183	1 ½
Riverton	1,916	(2)
Lake Fork	100	¾
Mount Pulaski	1,510	¼
Clinton	5,988	[3] 1

[1] From city limits.
[2] Passed over part of Riverton, but struck northeast corner.
[3] One mile from courthouse.

The path of the tornado varied in width from 200 to 2,000 feet. In some parts of its course a funnel-shaped cloud was reported. A State official, from the sixth floor of the capitol building, saw a distinct funnel cloud, lifting from the ground at times. In the suburbs of Springfield, where the path was narrow, a witness, one-half block from the path, saw a small funnel cloud. At Buffalo Hart and Cornland, where the path was wide, we could find no one who observed such a cloud. They spoke of boiling dark clouds, and some mentioned a cloud "rolling toward them." In connection with the May, 1917, and March, 1925, tornadoes[1] the writer suggested that the cloud was so close to the earth there was no room for the usual pendant portion. Here we have: Narrow path—funnel cloud; wide path—no funnel cloud. Hail fell in connection with the storm.

The direction of movement was northeast 7° east, and there were only slight variations from that direction. In part, the time of passage was secured from train dispatchers, being the time the wires went out. It passed Hardin about 12:00 noon; Wrights, about 12:25 p. m., Waverly, 12:50 p. m.; Springfield, about 1:10–1:15 p. m.; Buffalo Hart, 1:27 p. m.; Cornland, 1:30 p. m.; Clinton, 1:55 p. m.; Sibley, about 2:30 p. m. Some of these times are approximate, but using those that are believed to be exact it is found that the average velocity of translation, on a direct course, was 60 or 61 miles per hour. The Mattoon tornado of 1917 traveled at 40 miles per hour, and the great 1925 storm at 59 miles per hour.

The storm was continuous over much of its track, but there was some lifting and skipping. There were not many evidences of explosive force. At Buffalo Hart and Cornland trees and débris lay mostly to the northeast and north. In many cases, however, they lay to the southeast, and this appeared to be where the damage was most severe. We found no trees lying in the direction from which the storm had come. This storm lacked the severity of the great tornado of March, 1925. At Cornland we saw a 1 by 5 board driven well into a window casing. A private garage was entirely destroyed and carried away, but a new car was not moved or even scratched; near Le Roy a barn was carried away, but the horses, tied to the manger, were left standing and unhurt. Débris fell at Alexander, 10 miles to the left of the storm track.

The subjoined table (Table 2) is a statement by counties of the deaths, the number injured, and the property losses.

TABLE 2

County	Deaths	Known injured	Orchard loss	Other property
Lincoln, Mo.	0	12	$1,000	$20,000
Calhoun	2	21	15,000	35,000
Greene	8	23	None.	200,000
Macoupin	0	3	4,000	100,000
Morgan	0	4	2,500	100,000
Sangamon	4	22	6,000	183,000
Logan	6	14	----------	247,000
De Witt	1	9	1,000	200,000
McLean	0	15	10,000	210,000
Ford	0	----------	Minor.	35,000
Total	21	123	39,500	1,330,000

[1] See MONTHLY WEATHER REVIEW, June, 1917, 45:294; August, 1924, 52:396; November, 1924, p. 542; April, 1925, 53:144.

TORNADOES IN ARKANSAS, 1879–1926

By HARVEY S. COLE

[Weather Bureau, Little Rock, Ark.]

SYNOPSIS

The article presents three tables: One showing the place, date, and certain statistics regarding 225 tornadoes which occurred in Arkansas from 1879 to 1926; one showing the distribution of tornadoes by months and years; one showing the number of tornadoes by months from 1908 to 1926, the number of thunderstorms in Little Rock for the same period, and a comparison of tornadoes in Arkansas and thunderstorms at Little Rock. A chart showing the distribution of tornadoes over the State is given with arrows showing the direction of tornadoes at Fort Smith, Little Rock, Heber Springs, and Hot Springs.

The chart and tables are discussed, also some of the larger features of topography and their probable effect on the courses and distribution of tornadoes. It is pointed out that tornadoes usually form in the southeastern portion of the LOW and move northeastward; and reasons are given for the movement of some tornadoes in other directions and for the occurrence of tornado families.

Records of meteorological data in Arkansas before 1879 are very scarce, and if there are any concerning tornadoes before that date the writer has not been able to find them. Table 1 includes the place, date, time, width of path, direction from which the storm came, the number killed and injured, and all obtainable estimates of the value of the property destroyed for all tornadoes in Arkansas of